Model MDS-F2R53/MDS-F2R54 Small Inductive Sensor

Detection Surface:
Front side

Detection Surface:
Upper side

Model List	Operation Status	Detection Surface	Frequency
MDS-F2R5U3	Normally open	Upper side	Standard
MDS-F2R5U3B			Different
MDS-F2R53		Front side	Standard
MDS-F2R53B			Different
MDS-F2R5U4	Normally closed	Upper side	Standard
MDS-F2R5U4B			Different
MDS-F2R54		Front side	Standard
MDS-F2R54B			Different

Application

- Positioning of the processing machines
- Position detection of the the metal pallets and moving table
- Metal detection in a narrow space

Features

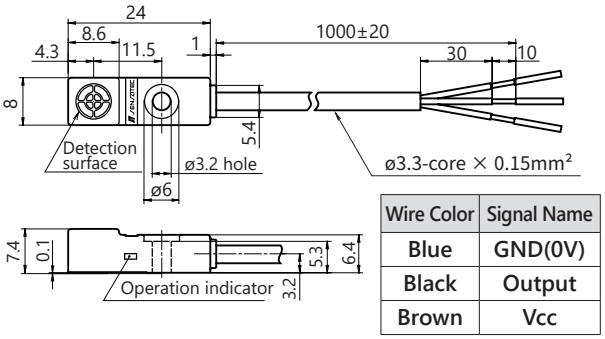
- Pch MOS FET open-drain output type small inductive sensor with a detection surface of 8 mm and a detection distance of 2.5 mm.
- Simple mounting with a single M3 screw or the mounting bracket that saves space (Sold separately).
- Safely available even in the place where water may splash thanks to its molded type.

Rating / Performance

Model	MDS-F2R5U3	MDS-F2R5U4	MDS-F2R53	MDS-F2R54
Detection Surface	Upper side detection		Front side detection	
Detection Distance	2.5 mm ± 20 %			
Standard Detection Target	Iron sheet of 15 × 15 mm and 1 mm in thickness			
Hysteresis	20 % or less of the detection distance			
Set Distance	0 to 1.8 mm			
Power Supply Voltage	12 V to 24 V DC (Operating voltage range : 10 V to 30 V DC)			
Current Consumption	10 mA DC or less (At 12V DC and 24V DC)			
Output	Pch MOSFET Open drain 30 V DC 100 mA DC or less			
Output Residual Voltage	1 V DC or less (Load current 100 mA DC and a 1-meter cord)			
Operation Status	Normally open (ON output when detecting)	Normally closed (OFF output when detecting)	Normally open (ON output when detecting)	Normally closed (OFF output when detecting)
Operation Indicator	Red LED (Lit when the output is ON)			
Response Frequency	1 kHz or more			
Temperature Range	-25 to 70 °C (-25 to 70 °C storage temperature range)(Without dew condensation or icing)			
Humidity Range	35 to 95 % RH (35 to 95 % RH storage humidity range)(Without dew condensation)			
Dielectric Strength	1000 V AC for 1 minute (Between the live part and case)			
Insulation Resistance	50 MΩ or more at 500 V DC megger (Between the live part and case)			
Vibration Resistance	10 to 55 Hz, 1.5 mm double amplitude in X, Y and Z directions for 2 hours each (at power off)			
Shock Resistance	1000 m/s^2 (Approx. 100 G) in X, Y and Z directions 10 times each (at power off)			
Protection	IP67			
Case Material	Polyarylate			
Cable	ø3, 3-core round cord of 0.15 mm^2 and insulation 0.8 mm and 1 m in length (Oil and heat resistant vinyl)			
Weight	Approx. 15 g			
Options (Sold Separately)	Mounting bracket : PMS-F2R5S			

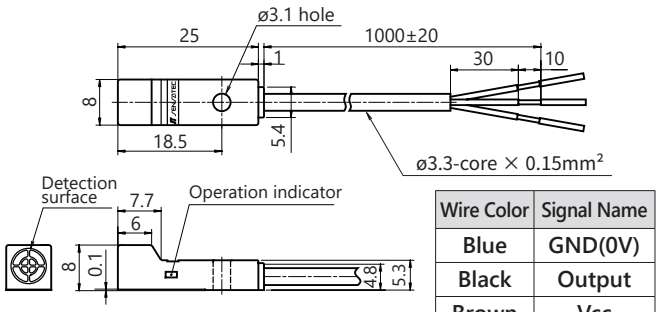
Outline Dimensions

MDS-F2R5U3(4)



Wire Color	Signal Name
Blue	GND(0V)
Black	Output
Brown	Vcc

MDS-F2R53(4)



Wire Color	Signal Name
Blue	GND(0V)
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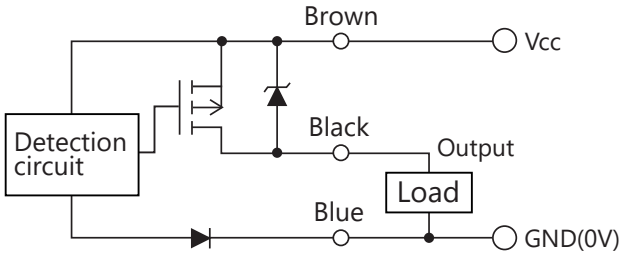
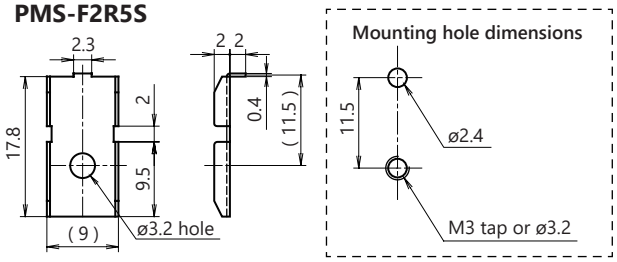
Output Circuit



Mounting Bracket (Sold Separately)

PMS-F2R5S



Precautions During Use

Influence of surrounding metal

- If there are metals present near the inductive sensor, keep them away from and beneath the plane of the sensor detection surface at a minimum of the values specified in the figure below.

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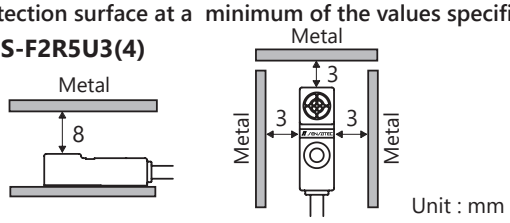
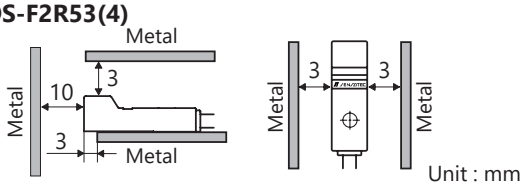


Unit : mm

MDS-F2R53(4)

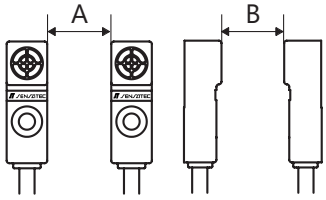


Unit : mm

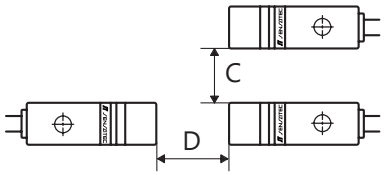
Mutual interference

- If you use a number of the same product, separate them at least by the distances shown in the figure below to prevent reciprocal interference. (The different frequency model type has "B" at the end of its model designation.)

MDS-F2R5U3(4)



MDS-F2R53(4)



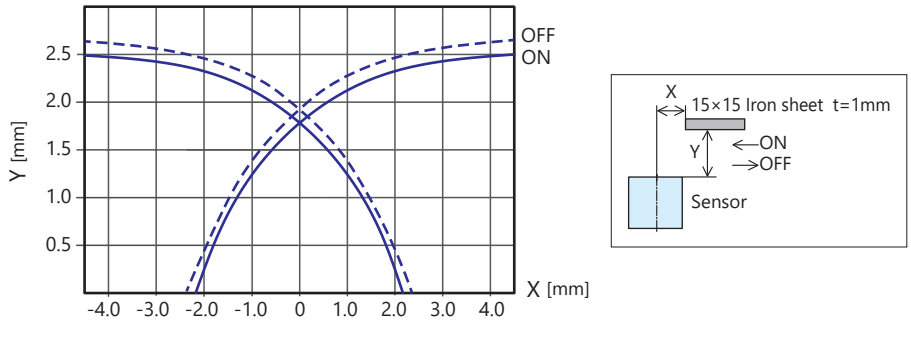
	Same frequency	Different frequency
A	20 mm	*0 mm
B	40 mm	15 mm
C	18 mm	*0 mm
D	40 mm	25 mm

*Mark values possible for up to two devices.

Mounting

- Use "flat washers and M3 screws" or "M3 truss screws" to fix the sensor. Control the tightening torque to 0.5 N·m or less.

* For other precautions, refer to "General Precautions" for inductive sensors.

Characteristics Graph (Typical Example)

Detection range